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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/661,273	09/11/2003	Vijayeshwar D. Khanna	HSJ920030120US1	7607

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EXAMINER

RENNER, CRAIG A

ART UNIT

PAPER NUMBER

2652

DATE MAILED: 09/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/661,273

Applicant(s)

KHANNA ET AL.

Examiner

Craig A. Renner

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 March 2005, 3 May 2005 & 22 July 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 and 3-23 is/are pending in the application.
- 4a) Of the above claim(s) 8, 16 and 23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3-7, 9-15 and 17-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election without traverse of "species 1, figure 1, on which Claims 1, 3-7, 9-15, and 17-23" are said to "read," in the reply filed on 22 July 2005 is acknowledged. Claim 23, however, does not read on the elected species as species I does not include "wherein the means for mechanically constraining extends only across an outer radial portion of the data storage medium," for instance (emphasis added). Non-elected species II of Figs. 2 and 3 includes the means for mechanically constraining extending only across an outer radial portion of the data storage medium. Accordingly, claims 8, 16 and 23 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to one or more non-elected inventions/species, there being no allowable generic or linking claim.

### ***Drawings***

2. The drawings were received on 28 March 2005. These drawings are accepted.

### ***Specification***

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The following is suggested:

--HARD DISK DRIVE WITH MOTION LIMITING ELEMENT CONSTRAINING  
MOVEMENT OF A HEAD SUSPENSION AWAY FROM A DISK.--

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1, 3-7 and 17-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. In lines 13-14 of claim 1, “an air bearing between the slider and disk is not disrupted” is indefinite as it is misdescriptive of the disclosure, which details that an air bearing between the slider and disk is not substantially disrupted (emphasis added).

b. In lines 7-8 of claim 17, “an air bearing surface is not disrupted by the movement of the data transfer element” is indefinite as it is misdescriptive of the disclosure, which details that an air bearing is not substantially disrupted by the movement of the data transfer element (emphasis added).

c. Claims 3-7 and 18-22 inherit the indefiniteness associated with their respective base claims and stand rejected as well.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 3, 6-7, 9-11, 14-15, 17-19 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Kuroda (JP 03-168985).

With respect to claims 1, 3 and 6-7, Kuroda teaches a hard disk drive comprising a base (6); a cover (7) covering the base; at least one rotatable data storage disk (5) supported on the base; at least one actuator (includes 12, for instance) movably mounted within the base; at least one assembly (includes 2 and 4, for instance) supported by the actuator, the assembly including a slider (4) supported by a suspension (2); and at least one motion limiting element (includes each 13, for instance) positioned to block shock-induced motion of the assembly when the slider is operating in at least an active region of the disk (as shown in FIGS. 1-2, for instance), the motion limiting element being spaced from the suspension such that motion of the suspension away from the disk in the event of a shock when the slider is operating in the region is constrained by the motion limiting element (as shown in FIG. 1, for instance), wherein a distance between the motion limiting element and the assembly is established (as shown in FIG. 1, for instance) to constrain movement of the suspension away from the disk (as shown in FIG. 1, for instance) such that an air bearing between the slider and disk is not disrupted (as shown in FIG. 1, for instance, in so far as this limitation is definite and understood as detailed in paragraph 5a, *supra*) [as per claim 1]; wherein both the cover and the base are formed with respective motion limiting elements (as shown in FIG. 1, for instance) [as per claim 3]; wherein the disk defines a data storage area and the motion limiting element is arcuate shaped across substantially the entire data storage area of the disk (as shown in FIG. 2, for instance, i.e., in as broad as the

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term "substantially" may be construed) [as per claim 6]; and wherein the disk defines a data storage area and the motion limiting element extends only across a portion of the radius of the data storage area of the disk (as shown in FIG. 2, for instance) [as per claim 7].

With respect to claims 9-11 and 14-15, Kuroda teaches a hard disk drive having a motion limiting element (any 13) mechanically constraining movement of at least one suspension (2) of the disk drive away from a disk (5) of the disk drive in the event of a mechanical shock to the disk drive while operating at least in a protected region of the disk such that an air bearing between a slider supported by the suspension and the disk is not substantially disrupted (as shown in FIG. 1, for instance) [as per claim 9]; wherein the hard disk drive further comprises a base (6); a cover (5) covering the base; and at least one actuator (includes 12, for instance) movably mounted within the base, the suspension being mounted on an end of the actuator (as shown in FIG. 2, for instance) [as per claim 10]; wherein both the cover and the base are formed with respective motion limiting elements (each 13, as shown in FIG. 1, for instance) [as per claim 11]; wherein the disk defines a data storage area and the motion limiting element is arcuate shaped across substantially the entire data storage area of the disk (as shown in FIG. 2, for instance, i.e., in as broad as the term "substantially" may be construed) [as per claim 14]; and wherein the disk defines a data storage area and the motion limiting element extends only across a portion of the data storage area of the disk (as shown in FIG. 1, for instance) [as per claim 15].

With respect to claims 17-19 and 22, Kuroda teaches a data storage device comprising at least one data storage medium (5); at least one data transfer element (4) juxtaposed with the medium for transferring data therebetween; and means (includes 13, for instance, in at least an equivalent structural sense) for mechanically constraining movement of the data transfer element away from the data storage medium in the event of a mechanical shock to the device while operating in a protected region of the medium (as shown in FIG. 1, for instance) such that an air bearing surface is not disrupted by the movement of the data transfer element (as shown in FIG. 1, for instance, in so far as this limitation is definite and understood as detailed in paragraph 5b, supra) [as per claim 17]; wherein the data storage device further comprises a base (6); a cover (7) covering the base; and at least one actuator (includes 12, for instance) movably mounted within the base, the data transfer element being mounted on an end of the actuator (as shown in FIG. 2, for instance) [as per claim 18]; wherein both the cover and the base are formed with respective means for mechanically constraining (includes each 13, for instance, in at least an equivalent structural sense, as shown in FIG. 1, for instance) [as per renumbered claim 19]; and wherein the means for mechanically constraining is arcuate shaped across a radial portion of the data storage medium (as shown in FIG. 2, for instance) [as per renumbered claim 22].

8. Claims 1, 3-5, 7, 9-13, 15 and 17-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Onda (US 6,417,991).

With respect to claims 1, 3-5 and 7, Onda teaches a hard disk drive comprising a base (11); a cover (23) covering the base; at least one rotatable data storage disk (13) supported on the base; at least one actuator (includes 16 and 17, for instance) movably mounted within the base; at least one assembly (includes 21a and 22a, for instance) supported by the actuator, the assembly including a slider (22a) supported by a suspension (21a); and at least one motion limiting element (includes 33 and/or includes 38, for instance) positioned to block shock-induced motion of the assembly when the slider is operating in at least an active region of the disk (as shown in FIG. 3, for instance), the motion limiting element being spaced from the suspension such that motion of the suspension away from the disk in the event of a shock when the slider is operating in the region is constrained by the motion limiting element (as shown in FIG. 3, for instance), wherein a distance between the motion limiting element and the assembly is established (s shown in FIG. 3, for instance) to constrain movement of the suspension away from the disk (as shown in FIG. 3, for instance) such that an air bearing between the slider and disk is not disrupted (as shown in FIG. 3, for instance, in so far as this limitation is definite and understood as detailed in paragraph 5a, supra) [as per claim 1]; wherein both the cover and the base are formed with respective motion limiting elements (includes 38 and includes 33, respectively) [as per claim 3]; wherein the motion limiting element is established at least in part by an indent (38) in the cover depending down from a plane defined by the cover (as shown in FIG. 3, for instance)



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[as per claim 4]; wherein the motion limiting element is established at least in part by a rib (33) in the base rising up from a plane defined by the base (as shown in FIG. 3, for instance) [as per claim 5]; and wherein the disk defines a data storage area and the motion limiting element extends only across a portion of the radius of the data storage area of the disk (as shown in FIG. 3, for instance) [as per claim 7].

With respect to claims 9-13 and 15, Onda teaches a hard disk drive having a motion limiting element (includes 33 and/or includes 38, for instance) mechanically constraining movement of at least one suspension (includes 21a, for instance) of the disk drive away from a disk (13) of the disk drive in the event of a mechanical shock to the disk drive while operating at least in a protected region of the disk such that an air bearing between a slider supported by the suspension and the disk is not substantially disrupted (as shown in FIG. 3, for instance) [as per claim 9]; wherein the hard disk drive further comprises a base (11); a cover (23) covering the base; and at least one actuator (includes 16 and 17, for instance) movably mounted within the base, the suspension being mounted on an end of the actuator (as shown in FIG. 3, for instance) [as per claim 10]; wherein both the cover and the base are formed with respective motion limiting elements (includes 38 and includes 33, respectively) [as per claim 11]; wherein the motion limiting element is established at least in part by an indent (38) in the cover depending down from a plane defined by the cover (as shown in FIG. 3, for instance) [as per claim 12]; wherein the motion limiting element is established at least in part by a rib (33) in the base rising up from a plane defined by the base (as shown in FIG. 3, for instance) [as per claim 13]; and wherein the disk defines a data storage area and the

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motion limiting element extends only across a portion of the data storage area of the disk (as shown in FIG. 3, for instance) [as per claim 15].

With respect to claims 17-21, Onda teaches a data storage device comprising at least one data storage medium (13); at least one data transfer element (includes 22a, for instance) juxtaposed with the medium for transferring data therebetween; and means (includes 33 and/or includes 38, for instance, in at least an equivalent structural sense) for mechanically constraining movement of data transfer element away from the data storage medium in the event of a mechanical shock to the device while operating in a protected region of the medium (as shown in FIG. 3, for instance) such that an air bearing surface is not disrupted by the movement of the data transfer element (as shown in FIG. 3, for instance, in so far as this limitation is definite and understood as detailed in paragraph 5b, supra) [as per claim 17]; wherein the data storage device further comprises a base (11); a cover (23) covering the base; and at least one actuator (includes 16 and 17, for instance) movably mounted within the base, the data transfer element being mounted on an end of the actuator (as shown in FIG. 3, for instance) [as per claim 18]; wherein both the cover and the base are formed with respective means (includes 38 and includes 33, respectively, for instance, in at least an equivalent structural sense) for mechanically constraining [as per renumbered claim 19]; wherein the means for mechanically constraining is established at least in part by an indent (38) in the cover depending down from a plane defined by the cover (as shown in FIG. 3, for instance) [as per renumbered claim 20]; and wherein the means for mechanically

constraining is established at least in part by a rib (33) in the base rising up from a plane defined by the base (as shown in FIG. 3, for instance) [as per renumbered claim 21].

### ***Pertinent Prior Art***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. This includes Chen et al. (US 6,549,372), which teaches a hard disk drive with at least one motion limiting element positioned to block shock-induced motion of a head suspension assembly.

### ***Response to Arguments***

10. Applicant's arguments filed 289 March 2005 have been fully considered but they are not persuasive.

The applicant argues "none of the relied-upon references teach or suggest establishing the distance between their respective motion limiting elements and respective suspension assemblies such that when the suspension assemblies move during shock, the ABS is not disrupted." This argument, however, is not found to be persuasive for the following: Firstly, applicant's disclosure only provides support for the ABS not being substantially disrupted as detailed in the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in paragraph 5, *supra* (emphasis added). Certainly applicants recognize that not even their motion limiting elements can prevent all disruption of the ABS as evidenced by the spacing of the motion limiting elements from their respective suspension assemblies thus creating a range of ABS values.

Likewise, both relied upon references establish a distance between their motion limiting elements and respective suspension assemblies as detailed in the rejections, *supra*. These distances establish a range of ABS values that are not substantially disrupted due to the presence of the motion limiting elements a selected distance from their respective suspension assemblies.

The applicant also asserts that the relied-upon references do not teach “the motion limiting element extends across only a portion of the disk radius.” This argument, however, is not found to be persuasive as Kuroda teaches that a motion limiting element (13) extends across only a portion of a disk (5) radius (as shown in FIG. 2, for instance); and Onda teaches that a motion limiting element (includes 33 or includes 38) extends across only a portion of a disk (13) radius (as shown in FIG. 3, for instance).

### ***Conclusion***

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Craig A. Renner whose telephone number is (571) 272-7580. The examiner can normally be reached on Tuesday-Friday 9:00 AM - 7:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T. Nguyen can be reached on (571) 272-7579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Craig A. Renner  
Primary Examiner  
Art Unit 2652

CAR